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REMARKS:

Claims 2 and 10 are canceled without prejudice or disclaimer. Claims 1 and 9 are amended to incorporate subject matter previously recited in claims 2 and 10, respectively. Claims 3, 7, 8, 11, 15 and 16 are amended to correct dependency in view of the cancellation of claims 2 and 10. Independent claim 17 is also amended herewith.

The Examiner objected to the dependencies of claims 6 and 14. The amendments to claims 1 and 9 should render the objection moot.

The Examiner rejected claims 1, 4, 5, 9, 12 and 13 under 35 U.S.C. §102(e) as being anticipated by Ying et al. (U.S. Patent Publication No. 2004/0079977). The Examiner rejected claims 2, 3, 8, 10, 11 and 16 under 35 U.S.C. §103(a) as being unpatentable over Ying et al. in view of Applicant's admitted prior art (hereafter referred to as "APA"). The Examiner rejected claims 6, 14 and 18 under 35 U.S.C. §103(a) as being unpatentable over Ying et al. in view of APA and further in view of Zhao et al. (U.S. Patent No. 6,727,946). The Examiner rejected claims 7, 15 and 19 under 35 U.S.C. §103(a) as being unpatentable over Ying et al. in view of APA and further in view of Janesick (U.S. Patent No. 6,909,126). The Examiner rejected claims 17 and 20 under 35 U.S.C. §103(a) as being unpatentable over Ying et al. in view of APA. These rejections are respectfully disagreed with and are traversed below.

INDEPENDENT CLAIMS 1, 9 AND 17

In view of the above-mentioned claim cancellations and amendments, the Examiner's rejection of claim 2 (in view of Ying et al. and APA) will be considered as representative of amended claim 1.

Ying et al. disclose an image sensor pixel having variable conversion gain. See Abstract. Specifically, Ying et al. disclose the use of a variable capacitive load 202 (see FIGS. 2B and 4)

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connected in parallel (see Abstract) with the photodiode 105 of a prior art pixel 101 (see FIG. 1). Ying et al. do not disclose or suggest the use or application of any other mechanism to implement variable conversion gain (i.e., other than a variable capacitive load connected in parallel with the photodiode of a pixel).

The APA comprises statements made in the Background Section of the instant application. Therein, the Applicant notes that conventional readout circuit amplifier types include a high gain amplifier type known as CTIA and a lower gain amplifier type known as SFD. The Applicant also identifies several commonly-assigned U.S. patents relating to these two types. The Applicant further notes that the wide dynamic range requirement has been approached, in a conventional readout circuit, by using a single circuit type, such as the CTIA, that is configured to have two or more distinct gains and variable integration times. See para. [0004].

In contrast, the instant application discloses the use of a configurable (i.e., programmable) unit cell that can be formed into two distinct circuits: a Charge Transimpedance Amplifier (CTIA) input circuit and a Source Follower per Detector (SFD) input circuit. The difference between these two circuits comprises much more than merely varying a capacitance load. One of ordinary skill in the art can appreciate the notable differences between FIG. 2 (CTIA circuit) and FIG. 3 (SFD circuit) in the instant application.

Furthermore, it would not have been obvious to one of ordinary skill in the art to combine Ying et al. and the APA as suggested by the Examiner. See p. 4 of the Office Action.

MPEP §2141 states:

Office policy is to follow *Graham v. John Deere Co.* in the consideration and determination of obviousness under 35 U.S.C. 103. As quoted above, the four factual inquires enunciated therein as a background for determining obviousness are as follows:

(A) Determining the scope and contents of the prior art;

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- (B) Ascertaining the differences between the prior art and the claims in issue;
- (C) Resolving the level of ordinary skill in the pertinent art; and
- (D) Evaluating evidence of secondary considerations.

Considering the APA, and considering the Ying et al. reference as a whole, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to combine them so as to arrive at a teaching that could be seen to disclose or suggest the claimed subject matter. Ying et al. do not suggest the desirability of using any technique other than a variable capacitance load. Any suggestion that the alleged combination of Ying et al. and the APA would be obvious is the product of impermissible hindsight vision afforded by the claimed invention and cannot serve as the basis for rejecting the claims under §103.

MPEP §2141.02 states:

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.

It is submitted that the claimed invention would not have been obvious to one of ordinary skill in the art at the time the invention was made in light of Ying et al. and the APA. While Ying et al. disclose the use of a variable capacitance load in order to solve the proposed problem, Ying et al. do not disclose or suggest any other solution to the problem. In contrast, the instant application discloses the use of a configurable unit cell that can be formed into a CTIA input circuit and a SFD input circuit. The use by Ying et al. of a variable capacitance load certainly cannot be seen to read on the use of a configurable unit cell that can form a CTIA circuit and a SFD circuit.

The features recited in claim 1 are not disclosed or suggested in the cited art. Ying et al. in view of the APA certainly does not render claim 1 obvious. Therefore, claim 1 is patentable and should be allowed.

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Though dependent claims 3-8 contain their own allowable subject matter, these claims should at least be allowable due to their dependence from allowable claim 1.

Independent claims 9 and 17 claim a similar feature as claim 1 noted above, including "A method to operate a readout circuit unit cell with a radiation detector... where said first amplifier circuit is comprised of a Charge Transimpedance Amplifier (CTIA) input circuit, and where said second amplifier circuit is comprised of a Source Follower per Detector (SFD) input circuit" (claim 9) and "A readout circuit unit cell for use with an infrared (IR) radiation detector... to form, in a first mode of operation below an illumination level threshold, a CTIA input circuit, and to form, in a second mode of operation above the illumination level threshold, a lower gain SFD input circuit" (claim 17). For the same reasons stated above with respect to claim 1, independent claims 9 and 17 are not rendered obvious by Ying et al. in view of the APA. Therefore, claims 9 and 17 are patentable and should be allowed.

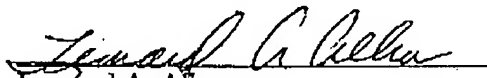
Though dependent claims 11-16 and 18-20 contain their own allowable subject matter, these claims should at least be allowable due to their dependence from allowable claims 9 and 17, respectively.

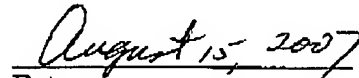
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CONCLUSION

The Examiner is respectfully requested to reconsider and remove the rejections of claims 1, 3-9 and 11-20 and to allow all of the pending claims as now presented for examination. For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record. Should any unresolved issue remain, the Examiner is invited to call Applicants' agent at the telephone number indicated below.

Respectfully submitted:


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